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JC18 Rec'd PCT/PTO 2 8 MAR 2001

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : OKUMURA et al.  
Int'l Appl. No.: PCT/JP00/02105  
Int'l Filing Date: 13 Mar 00  
Serial No. : 09/701,705  
Title : ESTIMATION DEVICE AND METHOD, DEMODULATION DEVICE  
AND METHOD, AND FADING FREQUENCY DECISION DEVICE  
AND METHOD

**BOX PCT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

**RESPONSE TO "NOTIFICATION OF MISSING REQUIREMENTS  
UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE"**

Sir:

We have received a "Notification of Missing Requirements Under 35 U.S.C. 371 in the United States Designated/Elected Office" mailed on 5 Feb 2001. We are returning herewith a copy of that Notice.

Additionally, a "Notification of a Defective Oath or Declaration" has been received, which points out that the third inventor's first name as it appears in the declaration filed in this application (i.e., "Masafumi") differs relative to how it appears in the international application on which the present application is based (i.e., "Masashi").

Applicants respectfully point out that the name "Masashi" was provided by WIPO by translating the inventor's name as it was provided originally in the Japanese language.

However, as confirmed by the attached statement of Mitsu Haraguchi, a person who knows well both the Japanese and English languages, the proper translation of the Mr. Usuda's first name, based on the name as it appears in Japanese on the front page of the WIPO publication WO00/60761 (PCT/JP00/02105), is "Masafumi".

Accordingly, the oath or declaration submitted in the present application is believed to properly identify all inventors, and Applicants believe they have completed all requirements for acceptance under 35 U.S.C. 371.

A confirmation of the completion of the requirements for acceptance under 35 U.S.C. 371 is respectfully requested.

Moreover, in view of the above, the surcharge of \$130.00 under 37 CFR 1.492(e) is believed to not apply. Nevertheless, the Commissioner is hereby authorized to charge any fees which may be required or credit any overpayment to our Deposit Account No. 02-4270.

Respectfully submitted,

Date: March 28, 2001

Ralph F. Hoppin  
 Ralph F. Hoppin  
 Reg. No. 38,494  
 BROWN RAYSMAN MILLSTEIN FELDER  
 & STEINER LLP  
 120 West Forty-Fifth Street  
 New York, New York 10036  
 (212) 944-1515

I hereby certify that this paper is being deposited this date with the  
 U.S. Postal Service as First Class Mail addressed to:  
 Assistant Commissioner for Patents, Box PCT, Washington, D.C. 20231

Ralph F. Hoppin  
 Ralph F. Hoppin

March 28, 2001  
 Date

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**BOX PCT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

**STATEMENT OF MITSU HARAGUCHI, A PERSON KNOWLEDGEABLE IN BOTH  
THE JAPANESE AND ENGLISH LANGUAGES**

Sir:

I, Mitsu Haraguchi, of Brown Raysman Millstein Felder & Steiner LLP, 120 West Forty-Fifth Street, New York, New York 10036, declare:

- (1) that I know well both the Japanese and English languages;
- (2) to the best of my knowledge and belief, a true and correct translation of the first name of the third-named inventor, Mr. Usuda, based on the name as it appears in Japanese on the front page of the WIPO publication WO00/60761 (PCT/JP00/02105), is  
"Masafumi".

3/23/01  
Date

M. Haraguchi  
Mitsu Haraguchi

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**

Address: ASSISTANT COMMISSIONER FOR PATENTS  
Box PCT.  
Washington, D.C. 20231

U.S. APPLICATION NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
09/701705	OKUMURA	Y 3815/107

BROWN RAYSMAN MILLSTEIN FELDER & STEINER  
21ST FLOOR  
120 WEST FORTY FIFTH STREET  
NEW YORK, NY 10036

INTERNATIONAL APPLICATION NO.	
PCT/JP00/02105	
I.A. FILING DATE	PRIORITY DATE
31 MAR 00	02 APR 99
DATE MAILED: <b>05 FEB 2001</b>	

**NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)**

1. The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as

- ☒ a Designated Office (37 CFR 1.494),  
☐ an Elected Office (37 CFR 1.495):
- ☒ U.S. Basic National Fee.
- ☒ Copy of the international application in:  
☒ a non-English language.  
☐ English.
- ☒ Translation of the international application into English.
- ☒ Oath or Declaration of inventors(s) for DO/EO/US.
- ☐ Copy of Article 19 amendments.
- ☐ Translation of Article 19 amendments into English.
- ☐ The International Preliminary Examination Report in English and its Annexes, if any.
- ☐ Translation of Annexes to the International Preliminary Examination Report into English.
- ☒ Preliminary amendment(s) filed 01 DEC 00 and \_\_\_\_\_.
- ☒ Information Disclosure Statement(s) filed 01 DEC 00 and \_\_\_\_\_.
- ☒ Assignment document.
- ☐ Power of Attorney and/or Change of Address.
- ☐ Substitute specification filed \_\_\_\_\_.
- ☐ Verified Statement Claiming Small Entity Status.
- ☒ Priority Document.
- ☒ Copy of the International Search Report ☒ and copies of the references cited therein.
- ☒ Other: PCT EASY 2.90

2. The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- ☐ a. Translation of the application into English. Note a processing fee will be required if submitted later than the appropriate 20 or 30 months from the priority date.  
☐ The current translation is defective for the reasons indicated on the attached Notice of Defective Translation.
- ☐ b. Processing fee for providing the translation of the application and/or the Annexes later than the appropriate 20 or 30 months from the priority date (37 CFR 1.492(f)).
- ☐ c. Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the international application number and international filing date.  
☒ The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) for the reasons indicated on the attached PCT/DO/EO/917.
- ☒ d. Surcharge for providing the oath or declaration later than the appropriate 20 or 30 months from the priority date (37 CFR 1.492(e)).

3. Additional claim fees of \$ \_\_\_\_\_ as a ☐ large entity ☐ small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due. See attached PTO-875.

**ALL OF THE ITEMS SET FORTH IN 2(a)-2(d) AND 3 ABOVE MUST BE SUBMITTED WITHIN ONE MONTH FROM THE DATE OF THIS NOTICE OR BY ☒ 21 OR ☐ 31 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.**

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

4. Translation of the Annexes **MUST** be submitted no later than the time period set above or the annexes will be cancelled. Note processing fee will be required if submitted later than 30 months from the priority date.

5. ☐ The Article 19 amendments are cancelled since a translation was not provided by the appropriate 20 (37 CFR 494(d)) or 30 (37 CFR 1.495(d)) months from the priority date.

Applicant is reminded that any communication to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above. (37 CFR 1.5)

***A copy of this notice MUST be returned with this response.***

Enclosed:

☒ PCT/DO/EO/917

☐ Notice of Defective Translation

☐ PTO-875

FORM PCT/DO/EO/905 (December 1997)

Karen Williams *KW*

Telephone: 703-305-3688



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
Address: ASSISTANT COMMISSIONER FOR PATENTS  
Washington, D.C. 20231

U.S. APPLICATION NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
09/701705	OKUMURA	Y 3815/107
BROWN RAYSMAN MILLSTEIN FELDER & STEINER 21ST FLOOR 120 WEST FORTY FIFTH STREET NEW YORK, NY 10036		INTERNATIONAL APPLICATION NO. PCT/JP00/02105
		I.A. FILING DATE 31 MAR 00
		PRIORITY DATE 02 APR 99
		DATE MAILED: 05 FEB 2001

#### NOTIFICATION OF A DEFECTIVE OATH OR DECLARATION

This application fails to contain an oath or declaration acceptable under 35 U.S.C. 371 (c)(4) for entry into the national stage in the United States of America. The period within which to correct these requirements and avoid abandonment is set in the accompanying Office action.

A new oath or declaration, identifying this application by the international application number and international filing date is required. The oath or declaration does not comply with 37 CFR 1.497(a) and (b) in that it:

1. ☐ is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68.
2. ☐ does not identify the specification to which it is directed.
3. ☒ does not identify the inventor(s). THIRD INVENTOR'S FIRST NAME IS DIFFERENT THAN ON INTERNATIONAL APPLICATION
4. ☐ does not identify the citizenship of each inventor.
5. ☐ does not state the person making the oath or declaration believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.

FAILURE TO SUBMIT AN OATH OR DECLARATION IN COMPLIANCE WITH 37 CFR 1.497(a) AND (b) WITHIN THE TIME PERIOD SET WILL RESULT IN FAILURE TO ENTER THE NATIONAL STAGE AND THE ABANDONMENT OF THE APPLICATION.

Additionally, the oath or declaration does not comply with 37 CFR 1.63 in that it:

1. ☐ does not identify the city and state or city and foreign country of residence or each inventor.
2. ☐ does not state that the person making the oath or declaration:
  - a. ☐ has reviewed and understands the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration.
  - b. ☐ acknowledges the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.
3. ☐ does not identify the foreign application for patent or inventor's certificate on which priority is claimed pursuant to 37 CFR 1.55, and any foreign application having a filing date before that of the application on which priority is claimed, by specifying the application serial number, country, day, month, and year of its filing.
4. ☐ does not state that the person making the oath or declaration acknowledges the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and filing date of the continuation in part application which discloses and claims subject matter in addition to that disclosed in the prior application (37 CFR 1.63(d)).

Karen Williams *KW*  
Telephone: 703-305-3688



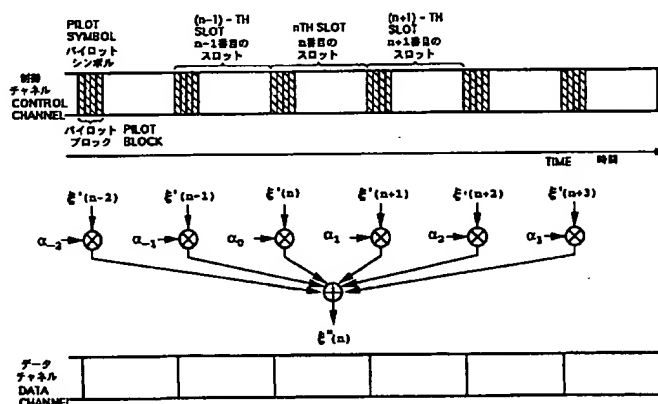
PCT

特許協力条約に基づいて公開された国際出願

(51) 国際特許分類7 H04B 1/707, H04J 13/04, H04L 27/01, H04B 7/26, H04Q 7/36		A1	(11) 国際公開番号 WO00/60761
		(43) 国際公開日	2000年10月12日(12.10.00)
(21) 国際出願番号 PCT/JP00/02105		白田昌史(USUDA, Masashi)[JP/JP] 〒236-0053 神奈川県横浜市金沢区能見台通18-11-102 Kanagawa, (JP)	
(22) 国際出願日 2000年3月31日(31.03.00)		石川義裕(ISHIKAWA, Yoshihiro)[JP/JP] 〒239-0841 神奈川県横須賀市野比4-18-4-503 Kanagawa, (JP)	
(30) 優先権データ 特願平11/96804 1999年4月2日(02.04.99) JP 特願平11/340638 1999年11月30日(30.11.99) JP 特願2000/82929 2000年3月23日(23.03.00) JP		尾上誠蔵(ONOE, Seizo)[JP/JP] 〒236-0032 神奈川県横浜市金沢区六浦町1974-21 Kanagawa, (JP)	
(71) 出願人 (米国を除くすべての指定国について) エヌ・ティ・ティ移動通信網株式会社 (NTT MOBILE COMMUNICATIONS NETWORK INC.) [JP/JP] 〒100-6150 東京都千代田区永田町2丁目11番1号 Tokyo, (JP)		(74) 代理人 谷 義一(TANI, Yoshikazu) 〒107-0052 東京都港区赤坂2丁目6-20 Tokyo, (JP)	
(72) 発明者 ; および (75) 発明者 / 出願人 (米国についてののみ) 奥村幸彦(OKUMURA, Yukihiro) 〒235-0033 神奈川県横浜市磯子区杉田9-2-3-405 Kanagawa, (JP) 安藤英浩(ANDO, Hidehiro)[JP/JP] 〒233-0006 神奈川県横浜市港南区芹が谷3-16-5-101 Kanagawa, (JP)		(81) 指定国 AU, CA, CN, JP, KR, SG, US, 欧州特許 (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE)	
		添付公開書類 国際調査報告書	

(54) Title: CHANNEL ESTIMATING DEVICE AND METHOD, DEMODULATING DEVICE AND METHOD, AND FADING FREQUENCY DETERMINING DEVICE AND METHOD

(54) 発明の名称 チャンネル推定装置および方法、復調装置および方法、ならびにフェージング周波数判定装置および方法



(57) Abstract

By a parallel time-multiplexing method, the weighted mean of pilot symbols are calculated and a channel estimation of a data symbol of a data channel is calculated. The data symbol in a slot is divided into data symbol sections. A pilot symbol suitable for the calculation of the channel estimation of the data symbol of each data symbol section is selected. The weighted mean of the selected pilot symbols is calculated and a channel estimation of the data symbol of each data symbol section is calculated. The weights are varied with the fading frequency determined based on the inner product of the pilot symbols. Received data is demodulated by use of the channel estimation determined by calculating the weighted mean of the pilot signals by using a plurality of weight series. A piece of output data the quality of which is best is selected by judging the reliability of demodulated data.